

Research Article

Development of Emotional Skills through Interdisciplinary Practices Integrated into a University Curriculum

M. L. Pertegal-Felices,¹ D. Marcos-Jorquera,² R. Gilar-Corbí,¹ and A. Jimeno-Morenilla²

¹Developmental and Educational Psychology Department, University of Alicante, Alicante, Spain

²Computer Technology and Computation Department, University of Alicante, Alicante, Spain

Correspondence should be addressed to M. L. Pertegal-Felices; ml.pertegal@ua.es

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The emotional profile of university students has been related to both academic performance and professional success. Such evidence has led higher education professionals to ask whether students can be trained in emotional skills at university stage. However, learning specific emotional skills requires a considerable investment of time from students. This paper presents an intervention aimed at developing emotional skills through interdisciplinary teamwork, without adding specific courses that could decrease the time that students devote to their core studies. The results indicated that working in interdisciplinary teams improved the level of emotional skills without hindering the attainment of academic objectives.

1. Introduction

1.1. Emotional Skills and the Professional World. The business world has long been interested in the characteristics or abilities of professionals that improve a company's performance. In response to this interest, research on the skills of successful employees has been conducted. In their analyses of these skills, various authors [1–6] have concluded that general and emotional intelligence (EI) and personality factors are part of the complex network of skills required to successfully perform professional activities.

Researchers such as Caruso and Salovey [7] and Goleman [3] have theorized that EI contributes to the ability of individuals to work effectively in teams and manage work stress. EI can contribute to the quality of human relationships in the workplace because emotions have communicative and social functions: they pass on information regarding thoughts and intentions and help facilitate social encounters [8].

EI seems to not only help improve the working environment but also increase effectiveness at work. Numerous studies support the relationship between emotional skills and performance [9–15]. EI contributes to performance in the workplace, enabling individuals to establish and cultivate

positive relationships, work effectively as part of a team, and build social capital [3, 7]. Work performance often depends on support, advice, and other resources provided by third parties [16]. However, EI can also enhance performance by enabling individuals to independently manage their emotions to effectively address stress, perform efficiently under pressure, and adapt to organizational changes [17].

1.2. Emotional Skills and the Academic World. The scientific evidence presented in the previous section highlights the positive relationship between work and emotional skills. Given that the university setting represents the stage that precedes entrance into the world of work, scientists have wondered about the possible relationships between emotional skills and their influence in the university context.

Among the numerous studies that analyze the emotional profile of university students, those that relate this profile to academic performance [18–20], to gender [21, 22], to the development of the emotional skills required by companies [23, 24], or to burnout syndrome [25–27] stand out.

In addition, higher education professionals have asked if training students in this type of skill is possible during their time at university, given that one of the main objectives

of universities is to promote employment and train highly efficient professionals to address the needs of society [28].

The Bologna Declaration [29], which summarizes approaches to the creation of a common European “space” of higher education before 2010, emphasized the importance of education (in terms of student acquisition of skills, abilities, competencies, and values) by adopting a new methodology oriented toward the learning of skills, including emotional skills. Similarly, the Tuning Educational Structures in Europe Project [28] develops professional profiles, learning outcomes, and skills that are desirable in terms of generic competencies related to each area of study. A number of these competencies are closely related to EI. In fact, they relate to individual capabilities with regard to expressing one’s feelings and social skills, including interpersonal skills and the ability to work in teams.

1.3. Improving the Emotional Skills of University Students. Despite the large number of studies that analyze and support the importance of EI in university students, few interventions have focused on this kind of education. The reason may be that, despite several studies that have encouraged intervention [30–36], there has been reluctance to implement this approach. This may be because topics not directly related to the curriculum are difficult to introduce because of the pressure to enhance academic performance [37].

Basically, there are two types of interventions aimed at improving emotional skills: specific courses (or seminars) that are separate from other courses and interventions integrated into university teaching within existing courses.

It is clear that learning any subject requires time and effort on the part of students. Learning emotional skills also requires a considerable investment of time. Consequently, in a study of psychology students, Oberst et al. [38] proposed a series of seminars that were held in small groups and that focused on students. These seminars promoted emotional skills and EI through problem solving. The authors concluded not only that universities require radical structural changes if they are to include training in these skills but also that a significant amount of time should be devoted to this endeavor. The study by Bond and Manser [39] follows the same lines. In this study, the first semester in certain technology degree programs was modified to include a course on learning emotional skills. The course focused on five dimensions, of which self-consciousness was the only dimension that improved in the intervention group. The authors explain that the lack of improvement in the overall level of EI was the result of the course’s short duration (15 weeks). In addition, students complained about the excessive amount of homework in relation to other courses.

EI intervention programs are often aimed at improving specific characteristics of university students. In fact, Short et al. [40] created a course in which coaching experts provided advice to psychology students to promote well-being, particularly during periods of increased academic stress. As a result of the lectures and seminars, the level of stress decreased in the studied groups, although the impact of the lectures and seminars on academic performance was not

examined. Additionally, Yilmaz’s research [41] focuses on the implementation of specific training for university students to improve anger control. An EI course demonstrated its effectiveness by significantly lowering anger levels among these students.

Shek et al. [42] designed a class at the University of Hong Kong titled “Tomorrow’s Leader,” which was based on the positive youth development approach. This class, which was included in the curriculum, promoted the intrapersonal abilities of students and proposed different evaluation systems. However, the impact of this class on the students’ main study areas was not analyzed.

Dacre Pool and Qualter [43] analyzed an intervention at an English university for students from different disciplines. In this case, the intervention was designed as an optional 11-week course for students in their second or third year. The intervention was considered successful because it improved the overall level of IE and emotional self-efficacy (ESE) of the students in the intervention group.

Numerous studies have proven the benefits of EI skills in university students. However, the few interventions that have proven effective in raising levels of EI have adversely affected students’ academic performance by stealing time that they would otherwise have spent on subjects directly related to their studies. A recent study demonstrated that it is possible to improve the academic performance through an interdisciplinary approach [44]. This research will seek to intervene in EI via the core curriculum, that is, without using specific courses or seminars.

1.4. Assessing EI Skills. There are two types of EI models used to describe emotionally intelligent individuals—the Ability Model and mixed models—and various instruments are used to assess emotional intelligence. These instruments are associated with the various existing models for describing emotionally intelligent individuals.

According to the mixed models, EI is conceived as a trait, and, in order for an individual to behave in an emotionally intelligent manner, key personality traits are required [4, 30, 45]. Based on these mixed models, various instruments that employ self-report measures have been developed. Among them, several stand out: the Bar-On Emotional Quotient Inventory (EQ-i) [46]; the Trait Emotional Intelligence Questionnaire (TEIQue), which resembles the EQ-i [47]; and the Emotional Competence Inventory (ECI) [3], which was designed to predict effectiveness and individual performance in the world of work and business.

The Ability Model views EI as a set of cognitive skills to adaptively use and manage emotions [5, 48, 49]. Different instruments (e.g., self-report and performance tests) have been developed to assess EI within the ability-based EI model, including the Trait Metamood Scale-48 (TMMS-48) developed by the Mayer-Salovey research group; the Spanish modified Trait Metamood Scale-24 (TMMS-24), which is Malaga research group’s scaled-down, Spanish-language version of the TMMS-48 [50]; and the Schutte Self-Report Inventory (SSRI) by Schutte et al. [51]. All of these self-report measures have acceptable internal consistency, reliability, and

validity. The Multifactor Emotional Intelligence Scale (MEIS) [52] and the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) [53] also measure EI and employ a hands-on approach.

Self-report test measures base their reliability on the sincerity of the subject, that is, the way in which the subject perceives his or her behavior in the various personal situations proposed by the test. In individualized scenarios, for example, in a personal assessment by a sociologist or psychologist, the individual is interested in being objective, thus rendering this test reliability acceptable. However, doubts regarding reliability arise when the test is applied to groups of individuals, such as in a classroom or in certain social groups. The individual's experience of being evaluated alongside his or her peers may cause him or her, either consciously or unconsciously, to express his or her "ideal" personality rather than provide natural responses. In addition, certain self-report measures overlap significantly with personality traits and lack a component based on ability or performance [54].

Performance tests, including the MSCEIT, evaluate EI using a series of objective and impersonal questions. The tests evaluate the ability to perceive, use, understand, and regulate emotions. Based on typical daily scenarios, such tests measure how well individuals perform certain tasks and solve emotional problems rather than requiring them to provide a subjective perception of their emotional skills. In fact, performance tests have a low correlation with self-report tests (Bracket, Salovey, 2006) and a minimal overlap with personality trait measures (Bracket, Mayer, 2003).

1.5. Research Hypothesis and Objectives. The present study examines whether interdisciplinary teamwork may also have a positive influence on the level of emotional skills of students who share a common project but who have different goals.

Our initial hypothesis is that working in interdisciplinary teams can improve emotional skills without the need to create specific courses that could negatively affect the time students devote to their studies.

In particular, we propose a curricular adaptation within the methodology of two compulsory courses in two degree programs. This approach enables students to experiment with working in interdisciplinary teams, as they would in professional environments, but to do so in this case within the university. Specifically, we propose the design of a guide to interdisciplinary practices. The curricular adaptation was introduced into the Usability and Accessibility course in the Multimedia Engineering degree program and into the Developmental Psychology course in the Primary School Teaching degree program. The research objectives include improving student emotional abilities, as measured by performance tests, without affecting syllabi content and thus not altering the specific content of each course or affecting student academic performance.

2. Method

2.1. Academic Context. The Multimedia Engineering degree program merges traditional engineering and computer engineering. Its general objective is to train professionals in the

TABLE 1: Enrolled students.

	Students	Female	Male	Age
Usability and Accessibility	47	8 (17%)	39 (83%)	20.8
Developmental Training	64	39 (61%)	25 (39%)	19.7
Total	111	47	64	

ICT sector who will be capable of directing new multimedia projects in both the leisure and digital entertainment spheres and managing content for dissemination in information networks.

The Usability and Accessibility (UA) course of this Spanish University is a required first-semester course in the first year of the Multimedia Engineering degree program that has been taught since the 2010/2011 academic year. The course's main objective is to provide students with the necessary concepts and tools to design and develop multimedia products with usability features that make using and learning these projects easier and accessibility features that allow users to access them whatever their status, ability, or situation.

The UA students' task in this work focused on the multimedia aspects of creating the application interface, particularly emphasizing the activity's ease of use and learning (usability) and ensuring access to end users (accessibility). During product development, it was emphasized that the product users would be children between six and 12 years of age, a fact that would notably affect the type of interface used.

The main objective of the Primary School Teaching degree program is to train teachers in primary education to perform efficiently in different contexts; to adapt to social, cultural, scientific, technological, and educational changes; and to fully understand the various primary school subjects and their interdisciplinary relationship while becoming critical thinkers with initiative who are committed to their profession and who are capable of reflecting on their teaching practice.

The Developmental Psychology (DP) course of this Spanish University is part of the Learning and Personality Development module. The course is part of the basic training provided in this degree program and is taught during the first four months of the first year. The course establishes the groundwork that students require to understand the characteristics of their own pupils and to optimize pupil development and the teaching-learning process.

2.2. Participants. Students who were enrolled in the Usability and Accessibility and Developmental Psychology courses participated in this study.

The total sample of students consisted of 111 individuals: 43 students in the experimental group and 68 in the control group. Table 1 summarizes the distributions of the students in both courses, indicating the number of enrolled students, their gender distribution, and their average age.

2.3. Instruments. Given the advantages of performance measurement methods compared with self-report tests in the educational context of this study, the MSCEIT Ability Model measure has been chosen as the tool to evaluate EI.

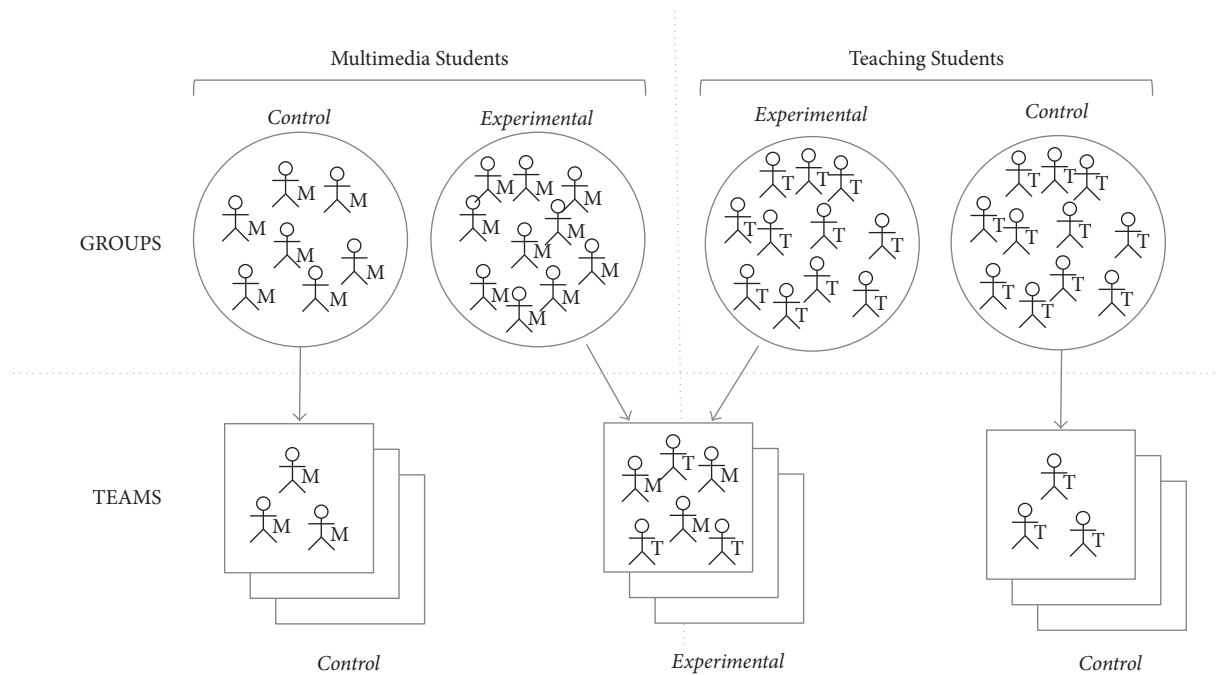


FIGURE 1: Distribution process for groups and teams.

The MSCEIT (i.e., the Spanish version adapted by Extremera and Fernández-Berrocal [55]) evaluates EI through a series of objective and impersonal questions. It tests the respondent's ability to perceive, use, understand, and regulate emotions (Perceiving Emotions, Facilitating Thought, Understanding Emotions, and Managing Emotions). The MSCEIT demonstrates good internal consistency, with 0.95 total reliability, oscillating between 0.93 and 0.76 across subscales [56].

In addition, this test has adequate factorial, construct, and predictive validity with moderately adequate psychometric properties [53, 57]. It also demonstrates discriminant validity with other analytical intelligence measures and various personality constructs while better interacting with interpersonal relationships [58]. Similarly, once the relevant cognitive and personality variables are controlled for, this instrument demonstrates evidence of incremental validity for academic performance [59].

The test evaluates four factors: the ability to perceive (PEIQ), the ability to use (FEIQ), the ability to understand (UEIQ), and the ability to manage (MEIQ) emotions.

2.4. Procedure. The main goal of the interdisciplinary proposal is the creation of Web-based multimedia activities that stimulate cognitive skills in primary school children (from six to 12 years of age). For evaluation purposes, the university students were randomly divided into two groups: an experimental group of students who created the products through collaborations of multimedia and teaching students in interdisciplinary teams and a control group of students who created the same products in monodisciplinary teams without contact with students from other degree programs

TABLE 2: Student distribution in groups and teams.

	Experimental group		Control group	
	Students	Teams	Students	Teams
Usability and Accessibility	23	9	24	8
Developmental Training	20		44	9
Total	43	9	68	17

(see Figure 1). The student distribution among the groups and teams is summarized in Table 2. The learning goals, assessments, and materials were the same for both groups.

The research study was conducted during the first semester of the academic year. The experimental group for the interdisciplinary experiment was selected from a course section whose schedule coincided with both the Usability and Accessibility and Developmental Psychology training courses—that is, when the students from both courses were available on the same day and at the same time.

The Web-based activities were organized and documented on the basis of school year and aptitude developed. Specifically, each team had to design and develop eight activities, two from each course level: infant, first, second and third years. The requirements of each activity were determined by the children's course level and were designed to improve their cognitive development. At the end, the teams had to report performance data and the time taken to complete the task for each activity to support professionals in assessing the children's progress.

The experimental teams of teaching and multimedia students were intended to have similar characteristics to those of interdisciplinary teams found in actual working environments. The goal of the multimedia students was to develop a

TABLE 3: Schedule for joint interdisciplinary course sessions.

Week	Activity	UA sessions	DP sessions
1			
2			1st session
3		1st–5th sessions: development of	2nd session
4	Previous activities	low complexity web product	3rd session
5			4th session
6		6th session: submission of first web product	5th session
7		7th session: developing application requirements	6th session: application request
8		8th session	7th session
9		9th session: submission of application specifications	8th session: submission of materials and specifications
10	Web-based activity for primary school children	10th session	9th session
11		11th session: design submission (sketch)	10th session: content review and modifications
12–14		12th–14th sessions	11th–14th sessions
15		15th session: submission of the final product, presentation, and assessment	14th session: submission and assessment of the website
16			15th session

Web-based multimedia product with a Web interface focused on facilitating the product's use and learning (i.e., usability) while ensuring access to end users (i.e., accessibility). The goal of the teaching students was to design and develop activities to stimulate the cognitive skills of children in preschool and primary school, including attention, memory, or reasoning. To ensure effective collaboration between the teaching and multimedia students, faculty incorporated small exercises to overcome any barriers. Both the control and experimental groups carried out the same work.

One of the most important aspects of implementing the interdisciplinary sessions was to plan the session calendars of both courses to allow for four joint practical sessions. Both courses had 15 sessions in the semester, but the DP course started in the second week. The joint practical sessions were held in weeks 7, 9, 11, and 15. In addition, each team, whether interdisciplinary or monodisciplinary, was permitted to organize as many working meetings as necessary to complete the project. Table 3 gives the schedule for the interdisciplinary sessions.

During their first sessions of the semester, the students developed other activities of low complexity that were unrelated to the product to be developed in the joint sessions. This initial development activity gave the students the basic skills necessary to successfully cope with the development of the Web-based activity.

To ensure suitable development of the practical activities and adherence to the planned schedule, a set of actions were

put in place for coordination among team members—both intrateam (students belonging to the same course) and interteam (students of both courses). Within each team (in both the experimental and control groups), a student acted in the role of general coordinator. For the experimental group, due the different schedules of the multimedia and teaching students, in each interdisciplinary group one UA student and one DP student took the role of communication manager with the other course. The interdisciplinary teams met during the joint class sessions. The interactions among the students in the interdisciplinary teams are shown in Figure 2; the size of the dots represents the level of responsibility of each student.

EI was measured on the first day of class by administering the test during class time. The test administration required approximately 30–45 minutes.

Once the training sessions during which the students in both groups performed the projects were completed, EI was again measured using the MSCEIT.

The content and specific skills evaluation was conducted using an objective performance test of the participants. This test was created following the basic procedure in the construction of criterion-referenced tests [60–62] and consisted of 30 items. These items consisted of 30 sentences with four response options. The participants were required to select the correct option. The total score on the test was established by the well-known formula $P = A - E/(n - 1)$, which penalizes mistakes made while completing a test.

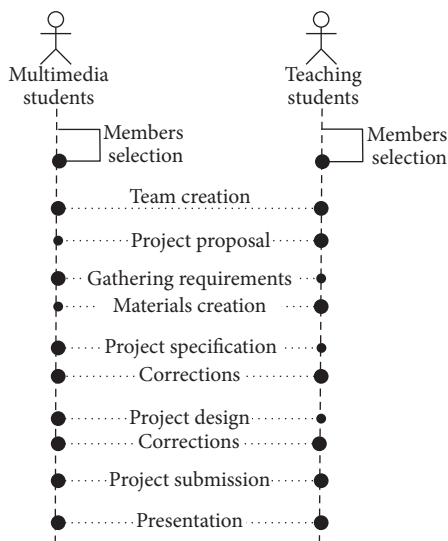


FIGURE 2: Coordination stages for interdisciplinary teams.

2.5. Design and Data Analysis. A nonequivalent control group design [63] with pre- and posttest control groups was used to test the research hypothesis.

The statistical analysis was conducted using the GLM (General Linear Model) module of the statistical software package SPSS version 21.0. A multivariate analysis of variance (MANOVA) and a univariate analysis of variance (ANOVA) of repeated measures were performed. In this factorial analysis of variance, at least one factor is based on independent observations, and at least one of these factors is based on correlated observations [64].

Additionally, interaction graphs were created to represent the differences observed between the experimental and control groups in the pre- and posttest situations and to observe the direction of the differences.

Finally, a comparison of averages was conducted to determine whether there were significant differences in the performances of the experimental and control groups.

3. Results

The two groups that underwent different interventions were compared. Thus, the independent variable or factor was membership in one group or another (i.e., the type of intervention), and the criterion or dependent variables were the scores achieved by the subjects in the EI test.

First, prior to the intervention, the differences in EI as measured by the MSCEIT between the two groups were evaluated. To this end, the means for the independent samples were compared. The results indicate that there were no significant differences in any of the variables studied between the two groups in the pretest phase ($p = .124$ (PEIQ); $p = 0.502$ (FEIQ); $p = 0.054$ (UEIQ); $p = 0.129$ (MEIQ)).

In the analysis of sample normality, it was found that the sampling populations were not normally distributed. However, the single factor variance analysis used in this case is robust with respect to violations of this assumption [65].

This outcome means that if the assumption is violated, Type I or Type II errors are not significantly affected [64].

Box's M test was used, obtaining homogeneity of the variance-covariance matrices only for the FEIQ factor ($p = 0.298$) and no homogeneity of the variance-covariance matrices for the remaining factors ($p = 0.000$). However, because of contrast sensitivity to the lack of normality, other procedures could be used to analyze the homogeneity of the variance-covariance matrices, including the Levene test. This test yielded values of significance for three of the four analyzed variables that were less than 0.05. Therefore, it can be stated that contrast is not satisfied. However, as Tabachnick and Fidell [66] observe, the larger ratio of variance between groups must not exceed 10 : 1. In this case, the ratio is 1 : 3.70, which means that the violation of this assumption has a minimal impact.

The repeated-measures general linear model was used to assess treatment effectiveness in the development of EI in the sample. The dependent variables were defined by the four factors evaluated by the MSCEIT: perception of emotions (PEIQ), use of emotions (FEIQ), understanding of emotions (UEIQ), and management of emotions (MEIQ). The intrasubject factors were represented by the evaluation time (pre- and posttest) for each of the dependent variables. The intersubject factors depended on the presence or absence of treatment (i.e., the experimental or the control group).

In the analysis of the intersubject effect tests, the observed values indicate that the average of all observations differs from zero ($0 < p < 0.016$) in all of the cases and that the intersubject factor effect on the dependent variables was significant for PEIQ and UEIQ measures ($0 < p < 0.031$).

Figures 3–6 present interaction graphs that indicate the direction of the differences.

The tests of the intrasubject effects (Tables 4–7) indicate that, in the case of PEIQ and MEIQ (Tables 4 and 7), only the effect of the interaction between the two independent variables (time of assessment and implementation of the program) is significant. In the case of FEIQ and UEIQ (Tables 5 and 6), time of evaluation and time of interaction are significant.

Regarding observed power (i.e., the correct rejection of the null hypothesis of mean equality), the interaction effect of the variables for time of assessment * program implementation is greater than that of the time of assessment separately in PEIQ, UEIQ, and MEIQ. The power for time of assessment separately in FEIQ is still greater.

In Table 8, the means, standard deviations, and effect sizes for all of the pre- and posttest variables are reported.

The effect size (η^2), the proportion of total variability attributable to a factor [64], and the difference between one time and another [67] that result from the interaction between the time of assessment and the implementation of the program were small for all four dependent variables (ranging between 0.46 and 0.75).

In order to analyze the possible impact of a control variable, a linear regression of Post-Pre scores on grades was performed. The results show that the contribution of grades was not significant in explaining any of the four variables related to EI.

TABLE 4: PEIQ intrasubject and intersubject effects.

Intrasubject effect		Type III sum of squares	df	<i>F</i>	Sig.	eta ²	Observed Power ^a
PEIQ	Sphericity assumed	149627,797	1	2,878	,093	,026	,390
	Greenhouse-Geisser	149627,797	1,000	2,878	,093	,026	,390
	Huynh-Feldt	149627,797	1,000	2,878	,093	,026	,390
	Lower-bound	149627,797	1,000	2,878	,093	,026	,390
PEIQ * group	Sphericity assumed	279048,067	1	5,367	,022	,047	,632
	Greenhouse-Geisser	279048,067	1,000	5,367	,022	,047	,632
	Huynh-Feldt	279048,067	1,000	5,367	,022	,047	,632
	Lower-bound	279048,067	1,000	5,367	,022	,047	,632
Error (factor 1)	Sphericity assumed	5667455,888	109				
	Greenhouse-Geisser	5667455,888	109,000				
	Huynh-Feldt	5667455,888	109,000				
	Lower-bound	5667455,888	109,000				
Intersubject effect							
Intersection		326967,206	1	6,809	,10	,059	,734
Group		236090,071	1	4,917	,029	,043	,594
Error		5234131,776	109				

^aComputed using alpha = .05.

TABLE 5: FEIQ intrasubject and intersubject effects.

Effect		Type III sum of squares	df	<i>F</i>	Sig.	eta ²	Observed power ^a
FEIQ	Sphericity assumed	1297,819	1	14,669	,000	,119	,967
	Greenhouse-Geisser	1297,819	1,000	14,669	,000	,119	,967
	Huynh-Feldt	1297,819	1,000	14,669	,000	,119	,967
	Lower-bound	1297,819	1,000	14,669	,000	,119	,967
FEIQ * group	Sphericity assumed	462,612	1	5,229	,024	,046	,620
	Greenhouse-Geisser	462,612	1,000	5,229	,024	,046	,620
	Huynh-Feldt	462,612	1,000	5,229	,024	,046	,620
	Lower-bound	462,612	1,000	5,229	,024	,046	,620
Error (factor 1)	Sphericity assumed	9643,316	109				
	Greenhouse-Geisser	9643,316	109,000				
	Huynh-Feldt	9643,316	109,000				
	Lower-bound	9643,316	109,000				
Intersubject effect							
Intersection		2114192,873	1	8236,571	,000	,987	1,000
Group		451,467	1	1,759	,188	,016	,260
Error		27978,515	109				

^aComputed using alpha = .05.

TABLE 6: UEIQ intrasubject and intersubject effects.

Effect		Type III sum of squares	df	<i>F</i>	Sig.	eta ²	Observed power ^a
UEIQ	Sphericity assumed	194288,379	1	7,746	,006	,066	,788
	Greenhouse- Geisser	194288,379	1,000	7,746	,006	,066	,788
	Huynh-Feldt	194288,379	1,000	7,746	,006	,066	,788
	Lower-bound	194288,379	1,000	7,746	,006	,066	,788
UEIQ * group	Sphericity assumed	222233,388	1	8,860	,004	,075	,839
	Greenhouse- Geisser	222233,388	1,000	8,860	,004	,075	,839
	Huynh-Feldt	222233,388	1,000	8,860	,004	,075	,839
	Lower-bound	222233,388	1,000	8,860	,004	,075	,839
Error (factor 1)	Sphericity assumed	2734100,567	109				
	Greenhouse- Geisser	2734100,567	109,000				
	Huynh-Feldt	2734100,567	109,000				
	Lower-bound	2734100,567	109,000				
Intersubject effect							
Intersection		944917,611	1	39,136	,000	,264	1,000
Group		229928,746	1	9,523	,003	,080	,864
Error		2631766,074	109				

^aComputed using alpha = .05.

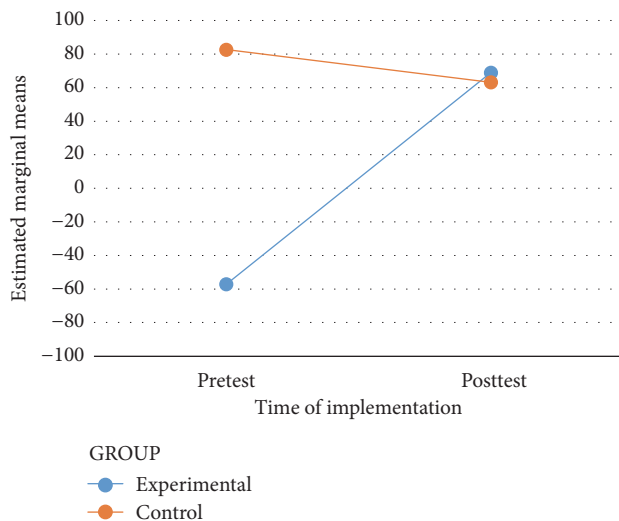


FIGURE 3: Graph of interactions for PEIQ.

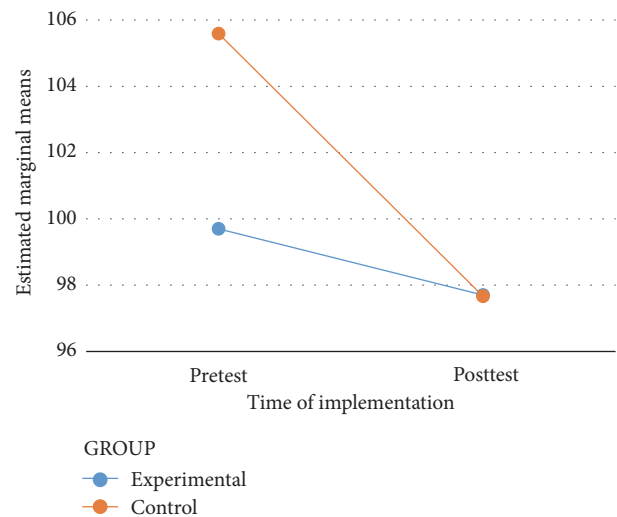


FIGURE 4: Graph of interactions for FEIQ.

Finally, a mean comparison using an independent samples *t*-test to determine if there are significant differences in the performance of the experimental and control groups was conducted. The results indicate that the values of the averages of both groups are equal ($p = 0.659$).

4. Discussion and Conclusions

The results confirm the main hypothesis of this study: working in interdisciplinary teams improves the level of emotional skills. This intervention shows that it is possible to improve the EI skills of both multimedia engineering and primary

TABLE 7: MEIQ intrasubject and intersubject effects.

Effect		Type III sum of squares	df	<i>F</i>	Sig.	eta ²	Observed power ^a
MEIQ	Sphericity assumed	157651,511	1	3,053	,083	,027	,410
	Greenhouse- Geisser	157651,511	1,000	3,053	,083	,027	,410
	Huynh-Feldt	157651,511	1,000	3,053	,083	,027	,410
	Lower-bound	157651,511	1,000	3,053	,083	,027	,410
MEIQ * group	Sphericity assumed	272199,691	1	5,271	,024	,046	,624
	Greenhouse- Geisser	272199,691	1,000	5,271	,024	,046	,624
	Huynh-Feldt	272199,691	1,000	5,271	,024	,046	,624
	Lower-bound	272199,691	1,000	5,271	,024	,046	,624
Error (factor 1)	Sphericity assumed	5628399,174	109				
	Greenhouse- Geisser	5628399,174	109,000				
	Huynh-Feldt	5628399,174	109,000				
	Lower-bound	5628399,174	109,000				
Intersubject effect							
Intersection		288533,334	1	6,030	,16	,052	,682
Group		227425,226	1	4,753	,31	,042	,580
Error		5215800,594	109				

^aComputed using alpha = .05.

TABLE 8: Means, standard deviations, and effect sizes for all variables.

	Group 1		Pretest Group 2		Cohen's <i>d</i>	<i>r</i>
	Mean	sd	Mean	sd		
PEIQ	-57,12	383,978	82,60	133,655	-0,4841	-0,2352
UEIQ	-28,91	356,292	102,10	12,44	-0,5196	-0,2514
FEIQ	99,70	10,947	105,59	12,786	-0,4948	-0,2401
MEIQ	-59,14	383,108	78,44	132,997	-0,4797	-0,2332
	Group 1		posttest Group 2		Cohen's <i>d</i>	<i>r</i>
	Mean	sd	Mean	sd		
PEIQ	68,95	167,396	63,12	186,699	0,0328	0,0164
UEIQ	96,77	15,502	97,88	14,419	-0,0741	-0,0370
FEIQ	97,70	13,926	97,66	14,190	0,0028	0,0014
MEIQ	67,44	166,978	61,24	186,229	0,0350	0,0175

education teacher program students through a program of interdisciplinary practical activities that overlap with other courses in the curriculum. This training program simulates a professional environment in the classroom that benefits students.

The participants in the control and experimental groups presented the same levels of emotional skills at baseline.

However, the participants in the experimental group, who completed the interdisciplinary training program, demonstrated significant improvement in two of the measured socioemotional skills: emotional perception and emotional management. Therefore, we can state that those subjects who worked with the interdisciplinary method succeeded in improving their ability to recognize and identify emotions

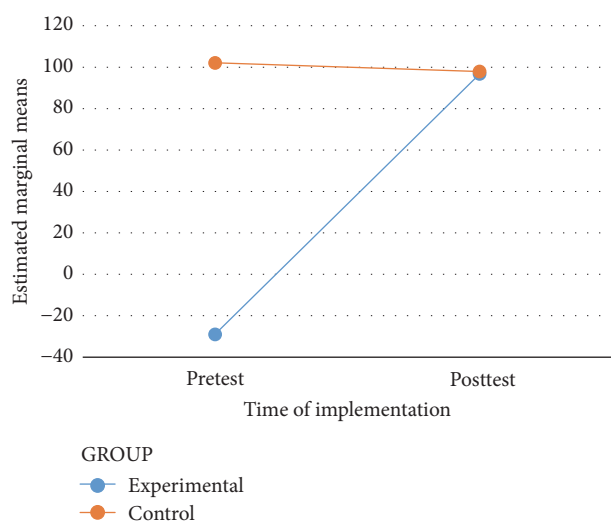


FIGURE 5: Graph of interactions for UEIQ.

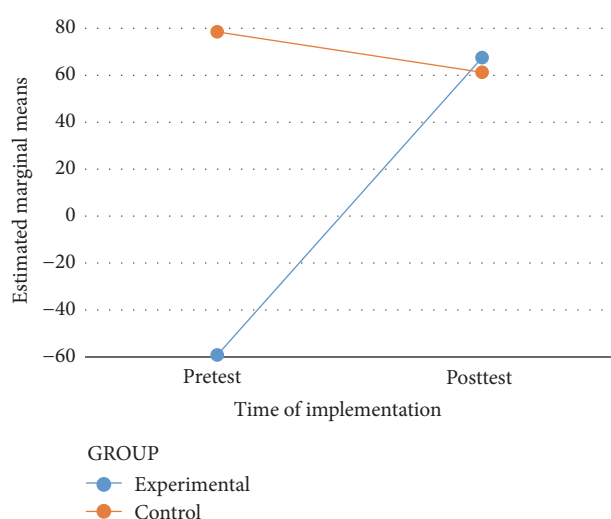


FIGURE 6: Graph of interactions for MEIQ.

in others and in the world around them and improved their ability to effectively use their own feelings while combining emotion and thinking to exhibit effective behaviors.

It is important to note that, with this interdisciplinary method, the proposed academic objectives continue to be met because, as we observed, there were no differences in the final performances of the students, regardless of the group to which they belonged. Consequently, we can assert that the use of this method benefits the development of the skills necessary in life and the work world without impeding the acquisition of other curricular content.

Educators who integrate this interdisciplinary activity in similar programs will find that it is easier to implement and that it has the advantage of not overloading students with extracurricular courses that enhance teamwork but take time from their training in specific competencies.

It is necessary to develop curricular designs that include the integration of interdisciplinary perspectives that provide

opportunities for students to think about the strengths and limitations of their disciplines. It is important to consider the value of other disciplinary perspectives, prepare students to work effectively in teams, and provide students with the requisite ability to integrate in the job market where there is a variety of disciplinary areas.

4.1. Study Limitations. Given the nature of this intervention, we can infer that its application would be easier in universities with a substantial variety of degree programs and student types, which would result in team synergy and a wide array of communication nuances that could positively influence the emotional capacities of interdisciplinary groups. A suggestion for overcoming the difficulty of scheduling different faculties would be to establish multidisciplinary teams within a degree field; the teams would be similar to those commonly used in Australian universities—for example, in final-year capstone projects across different disciplines.

However, one of the main difficulties confronted by this program was the coordination of courses across different degree programs. To conduct the joint training sessions, a rearrangement of schedules among programs and departments was required. In this way, the interdisciplinary groups were able to share class time, thereby avoiding coordination issues among students.

Another difficulty was related to the type of project to conduct. The project had to include specific aspects of both degree programs. Therefore, the project was divided into small modules in an attempt to include the maximum possible knowledge from each subject area.

4.2. Future Research. Future research will aim at extending this intervention to other courses and degree programs at this university. The first objective is to find a group of students in a degree program that can participate in interdisciplinary courses throughout their university careers. In this way, a longitudinal study may be performed to analyze the evolution of students' emotional skills. In a second phase, student employability should be analyzed to determine if the program also has a positive effect on the incorporation of graduates into the world of work.

In this work, only EI traits have been measured. The authors' suspicion is that possible impact on the behavioral level could be much stronger. In order to measure this impact, future studies will include other instruments as ESCI [68], which would be proposed and contrasted with MSCEIT.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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